

## Claims:

- 1     1.     A route search method for a navigation device, wherein:  
2             said navigation device comprises a storage unit that stores  
3     link data for each link as a component of roads on a map and  
4     statistical data including link travel times obtained by  
5     statistically processing traffic information collected previously;  
6     and  
7             said method comprises:  
8             a step of establishing a plurality of route search  
9     conditions;  
10            a route search step, in which, for each of said plurality of  
11     route search conditions, a cost of each link is determined using  
12     said link data or said statistical data depending on the route  
13     search condition in question, and a route having a smallest total  
14     cost for traveling from a departure point to a destination is  
15     searched for; and  
16            a travel time calculation step, in which an expected travel  
17     time for each of a plurality of routes retrieved in said route search  
18     step is calculated using said statistical data.
- 1     2.     A route search method according to Claim 1 for a  
2     navigation device; wherein:  
3             said link data includes a link travel time obtained from  
4     map information; and  
5             in said route search step, a cost of each link is determined  
6     using a link travel time included in said statistical data when a

7 search condition is established in order to perform a search using  
 8 the statistical data, and a cost of each link is determined using  
 9 the link travel time included in said link data when a search  
 10 condition is established in order to perform a search without  
 11 using the statistical data, and then a route having a smallest  
 12 total cost for traveling from the departure point to the destination  
 13 is searched for.

1 3. A route search method according to Claim 1 or 2 for a  
 2 navigation device, wherein:  
 3 said link data includes link length information; and  
 4 in said route search step, a cost of each link is determined  
 5 using the link length information included in said link data when  
 6 a search condition is established in order to perform a search  
 7 giving priority to a travel distance, and then a route having a  
 8 smallest total cost for traveling from the departure point to the  
 9 destination is searched for.

1 4. A route search method for a navigation device, wherein:  
 2 said navigation device comprises a storage unit that stores  
 3 link data for each link as a component of roads on a map and  
 4 statistical data including link travel times obtained by  
 5 statistically processing traffic information collected previously;  
 6 and  
 7 said method comprises:  
 8 a step of establishing a plurality of route search  
 9 conditions;  
 10 a route search step, in which a cost of each link is

11 determined using link length information included in said link  
 12 data when a search condition is established in order to perform a  
 13 search giving priority to a travel distance, and a cost of each link  
 14 is determined using a link travel time included in said statistical  
 15 data when a search condition is established in order to perform a  
 16 search that gives priority to a travel time and uses the statistical  
 17 data, and a cost of each link is determined using a link travel  
 18 time obtained from map information included in said link data  
 19 when a search condition is established in order to perform a  
 20 search that gives priority to a travel time and does not use the  
 21 statistical data, and then a route having a smallest total cost for  
 22 traveling from a departure point to a destination is searched for;  
 23 and

24 a travel time calculation step, in which an expected travel  
 25 time for each of a plurality of routes retrieved in said route search  
 26 step is calculated using said statistical data.

1 5. A route search method according to one of Claims 1 - 4 for  
 2 a navigation device, wherein:

3 said link data for each link includes road type information  
 4 of the link in question; and

5 in said route search step, when a search condition is  
 6 established in order to perform a route search giving priority to a  
 7 specific road type; a cost of a link of said specific road type is  
 8 determined lower in comparison with links of other road types,  
 9 based on said road type information.

1 6. A route search method according to one of Claims 1 - 5 for

2 a navigation device, wherein:

3       said navigation device displays the expected travel times  
4 calculated in said travel time calculation step.

1 7. A route search method for a navigation device, wherein:

2       said navigation device comprises a storage unit that stores  
3 link data for each link as a component of roads on a map and  
4 statistical data including link travel times obtained by  
5 statistically processing traffic information collected previously;

6       said method comprises:

7       a step of establishing a plurality of route search  
8 conditions;

9       a route search step, in which a cost of each link is  
10 determined using said link data or said statistical data depending  
11 on a search condition, and a route having a smallest total cost for  
12 traveling from a departure point to a destination is searched for;  
13 and

14       a route guidance step, in which route guidance is  
15 performed using the route retrieved in said route search step; and

16       an expected travel time used for said route guidance is  
17 calculated using said statistical data.

1 8. A route search method for a navigation device, wherein:

2       said navigation device comprises a storage unit that stores  
3 link travel times used for calculating an expected travel time for  
4 traveling from a departure point to a destination; and

5       said method comprises:

6       a step of establishing a plurality of route search

7 conditions;

8 a route search step, in which, for each of said plurality of  
9 route search conditions, a cost of each link is determined  
10 depending on the route search condition in question, and a route  
11 having a smallest total cost is searched for; and

12 a travel time calculation step, in which an expected travel  
13 time for each of a plurality of routes retrieved in said route search  
14 step is calculated using the link travel times stored in said  
15 storage unit, disregarding said route search condition.

1 9. A route search method according to one of Claims 1 - 7 for  
2 a navigation device, wherein:

3 said navigation device performs a receiving step in which  
4 selection of use or non-use of the statistical data is received; and

5 when a route search without using the statistical data is  
6 selected in said receiving step, then, in said route search step, a  
7 route search is performed without using the statistical data, and  
8 calculation of said expected travel time is performed using said  
9 link data and without using the statistical data.

1 10. A navigation device comprising:

2 a storage unit that stores link data for each link as a  
3 component of roads on a map and statistical data including link  
4 travel times obtained by statistically processing traffic  
5 information collected previously;

6 a search condition establishing means that establishes a  
7 plurality of route search conditions;

8 a route search means that determines, for each of said

9 plurality of route search conditions, a cost of each link using said  
10 link data or said statistical data depending on the route search  
11 condition in question, and searches for a route having a smallest  
12 total cost for traveling from a departure point to a destination;  
13 and

14 a travel time calculation means that calculates an  
15 expected travel time using said statistical data, for each of a  
16 plurality of routes retrieved by said route search means.

1 11. A navigation device comprising:

2 a storage unit that stores link data for each link as a  
3 component of roads on a map and statistical data including link  
4 travel times obtained by statistically processing traffic  
5 information collected previously;

6 a search condition establishing means that establishes a  
7 plurality of route search conditions;

8 a route search means that:

9 determines a cost of each link using link length  
10 information included in said link data when a search condition is  
11 established in order to perform a search giving priority to a travel  
12 distance;

13 determines a cost of each link using a link travel time  
14 included in said statistical data when a search condition is  
15 established in order to perform a search that gives priority to a  
16 travel time and uses the statistical data;

17 determines a cost of each link using a link travel time  
18 obtained from map information included in said link data when a  
19 search condition is established in order to perform a search that

20 gives priority to a travel time and does not use the statistical  
21 data; and

22 searches for a route having a smallest total cost for  
23 traveling from a departure point to a destination; and

24 a travel time calculation means that calculates an  
25 expected travel time using said statistical data for each of a  
26 plurality of routes retrieved by said route search means.

1 12. A navigation device, wherein:

2 said navigation device comprises:

3 a storage unit that stores link data for each link as a  
4 component of roads on a map and statistical data including link  
5 travel times obtained by statistically processing traffic  
6 information collected previously;

7 a search condition establishing means that establishes a  
8 plurality of route search conditions;

9 a route search means that determines a cost of each link  
10 using said link data or said statistical data depending on a search  
11 condition and searches for a route having a smallest total cost for  
12 traveling from a departure point to a destination; and

13 a route guidance means that performs route guidance  
14 using the route retrieved by said route search means; and

15 an expected travel time used for said route guidance is  
16 calculated using said statistical data.

13. A navigation device comprising:

a storage unit that stores link travel times used for  
calculation of an expected travel time for traveling from a

departure point to a destination;

a search condition establishing means that establishes a plurality of route search conditions;

a route search means that determines, for each of said plurality of route search conditions, a cost of each link depending on the route search condition in question, and searches for a route having a smallest total cost; and

a travel time calculation means that calculates an expected travel time using the link travel times stored in said storage unit disregarding said route search condition, for each of a plurality of routes retrieved by said route search means.